LPDES PERMIT NO. LA0124575, AI NO. 162740, ACTIVITY NO. PER20090001

LPDES STATEMENT OF BASIS
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

COMPANY/FACILITY: Henry Gas Storage, LLC
1010 Lamar – Suite 1720
Houston, Texas 77002

ISSUING OFFICE: Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
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DATE PREPARED: June 24, 2009

I. PERMIT STATUS

A. Reason For Permit Action:

Proposed first time issuance of a Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301, 4901 and 4903.

B. LPDES permit effective date: N/A
LPDES permit expiration date: N/A

C. Application was received on January 22, 2009

II. FACILITY INFORMATION

A. Location:

Louisiana Highway 83 South, Cote Blanche Island, Glencoe, St. Mary Parish
Latitude: 29° 45' 58.2", Longitude: 91° 42' 58.5"

B. Applicant Activity:

According to the application, Henry Gas Storage, LLC (Henry Gas) is a proposed natural gas storage facility. The proposed facility will consist of four natural gas storage caverns in the underlying salt domes and a natural gas compressor station. The facility will inject, store, and withdraw natural gas from the storage caverns. Natural gas will be obtained from interstate and intrastate pipelines in the area. The facility will be developed by solution mining salt from the salt dome over a four year period to form storage caverns within the rock salt. Raw water from the Intracoastal Waterway will be pumped into the salt dome and the salt will be dissolved and removed. The resulting brine will be discharged into the Gulf of Mexico.

A total of four caverns will be mined. The working gas storage capacity will be eight (8) billion standard cubic feet (BSCF) for each cavern with a total of 32 BSCF. Additional caverns may be proposed in the future. The caverns will be located approximately 3,200 feet below ground surface and have dimensions of approximately 350 feet by 1,200 feet.

The discharge of brine is estimated at 14.40 million gallons per day (MGD) during the first four years of cavern development. After the initial development of the caverns, brine will be discharged intermittently as a result of filling and discharging of the caverns for testing and passive mining. These brine discharges are estimated to be 5.33 MGD and have a sodium concentration range from 140 to 300 parts per thousand (ppt).

There is only one other permitted brine discharge into the Territorial Seas of the Gulf of Mexico in Louisiana. Louisiana Offshore Oil Port (LOOP) facilities began operations in the 1970's. Additionally, the United States Department of Energy (DOE), Strategic Petroleum Reserve (SPR) discharged brine from its West Hackberry facility from 1981-1983.

In order for these facilities to obtain the necessary authorization to discharge brine, extensive studies and monitoring was performed to provide that the environmental impact of the brine discharge would be minimal. Both facilities designed and built pipeline structures in the Territorial Seas of the Gulf of Mexico with multi-port diffusers to enhance mixing and minimize environmental impacts. The summary of each facility's discharge parameters can be found in Table 1 in EDMS document 39520715.

Henry Gas conducted surface water quality modeling was performed using the CORMIX 5.0 mixing zone model (Version 5.02.0). The CORMIX model was developed for the U.S. Environmental Protection Agency (EPA) as a multi-dimensional model designed for the analysis, prediction and design of aqueous pollutant discharges into diverse water bodies. CORMIX uses ambient water body data, outfall discharge port characteristics and effluent data to simulate the resultant plume.

A preferred location was found within the Territorial Seas of the Gulf of Mexico at a water depth of 12 feet. The location was selected in an area with the greatest depth and the least amount of obstacles (i.e., existing pipelines, oil and gas wells, oyster reefs) in the general area. Fixed variables were used for the discharge port diameter, ambient water depth (12 feet), and discharge location (approximately 23.1 miles from the Cote Blanche Island shoreline), along with the ambient current [0.1 meter per second (m/s)] and density [1,017 kilogram per cubic meter (kg/m^3)] data from the Territorial Seas General Permit (LAG260000). Variable effluent densities and the mixing characteristics of a single port versus a multiport diffuser were used in an effort to obtain the best port design.

The modeling results for both the single port and multi-port scenarios indicated that the brine discharge mixes rapidly with the receiving water. Within 50 feet of the single port and multi-port diffuser discharge, approximately 94% and 87% of the brine is fully mixed with the receiving water, respectively. The mixing rate decreases slightly between 50 and 400 feet, but is still very noticeable. However, the mixing rate appears to be slightly faster over the course of this distance for the single port diffuser when compared to the multi-port. The mixing becomes more passive in both cases as the discharge plume extends past 400 feet. Overall, the mixing rate of the single port diffuser appears to be more efficient than the muli-port diffuser. The complete CORMIX 5.0 modeling results can be found in Table 3 in EDMS document 39520715.

The following discharges are expected from the proposed facility. Brine will be discharged directly into the Gulf of Mexico. Utility wastewaters including compressor blowdown and overflow, fuel gas condensate, flare knockout drum condensate, pipeline tie-in/meter station condensate, washdown wastewaters and treated sanitary wastewater will be discharged into the Intracoastal Waterway. Process area stormwater, pump drains, fire fighting waters, fire fighting test waters and hydrostatic test wastewater will discharge through local drainage and thence into the Intracoastal Waterway. All other stormwater is discharged via sheet flow and is not associated with industrial activity.

C. Technology Basis:

40 CFR Chapter I, Subchapter N, Effluent Guidelines and Standards, Parts 401, 405-417 and 421-471 as adopted by reference in LAC 33:IX.4903.

Guideline	Reference
NA	NA

Other sources of technology based limits:
LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (USEPA)
Louisiana Water Quality Management Plan for Sanitary Dischargers

Best Professional Judgment (BPJ)
Light Commercial Facilities General Permit LAG480000, (effective August 1, 2001)
Class I Sanitary Discharge General Permit LAG530000
Hydrostatic Test Wastewater General Permit LAG670000

D. Fee Rate:

1. Fee Rating Facility Type: Minor
2. Complexity Type: II
3. Wastewater Type: III
4. SIC codes: 4922

E. Continuous Facility Effluent Flow:

14.43 Million gallons per day (MGD)

III. RECEIVING WATERS:

A. Stream:

Gulf of Mexico via diffuser pipe (Outfall 001)
Intracoastal Waterway via effluent pipe (Outfall 002)
Intracoastal Waterway via effluent pipe thence via local drainage (Outfall 003)

B. Basin and Subsegment:

Atchafalaya River Basin – 010901 (Outfall 001)
Vermilion-Teche River Basin - 060906 (Outfalls 002 and 003)

C. Designated Uses:

The designated uses of subsegment 010901 in the Atchafalaya River Basin are primary contact recreation, secondary contact recreation, the propagation of fish and wildlife and oyster propagation.

The designated uses of subsegment 060906 in the Vermilion-Teche River Basin are primary contact recreation, secondary contact recreation and the propagation of fish and wildlife.

IV. OUTFALL INFORMATION:

Outfall 001:

A. Discharge Type:

The discharge of brine.

B. Location:

At the point of discharge, from the diffuser pipe located 22 miles south of the facility in the Gulf of Mexico prior to mixing with other waters of the state at Latitude 29° 24' 54.5", Longitude 91° 43' 28.9".

C. Treatment:

Brine will be routed to a brine decanting tank to remove dirt, sand, rocks and gravel prior to discharging through Outfall 001.

D. Flow:

Continuous at 14.4 MGD

Outfall 002

A. Discharge Type:

The discharge of utility wastewater and treated sanitary wastewater from Internal Outfall 201.

B. Location:

At the point of discharge from the pipe in the north portion of the facility prior to mixing with waters of the Intracoastal Waterway at Latitude 29° 45' 50.3", Longitude 91°42' 30.7".

C. Treatment:

None

D. Flow:

Continuous at 0.0797 MGD

Internal Outfall 201

A. Discharge Type:

The discharge of treated sanitary wastewater.

B. Location:

At the point of discharge from the sanitary treatment plant, prior to mixing with waters of Outfall 002 at Latitude 29°45'6.9", Longitude 91°42' 9.4".

C. Treatment:

Activated sludge followed with chlorination.

D. Flow:

Continuous at 1000 gallons per day (GPD)

Outfall 003

A. Discharge Type:

The discharge of stormwater runoff, pump drains, fire fighting water, fire fighting test wastewater and hydrostatic test wastewater from Internal Outfall 301.

B. Location:

At the point of discharge, from the pipe in the northeast corner of the facility prior to mixing with other waters of the Intracoastal Waterway at Latitude 29° 45' 8.5", Longitude 91° 42' 47".

C. Treatment:

None

D. Flow:

Continuous at 28,800 GPD

Internal Outfall 301

A. Discharge Type:

The discharge of hydrostatic test wastewater.

B. Location:

At the point of discharge from the tested vessel or pipe prior to mixing with others waters of Outfall 003.

C. Treatment:

None

D. Flow:

Intermittent

V. PERMIT LIMIT RATIONALE:

The following section sets forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit. Also, set forth are any calculations or other explanations of the derivation of specific effluent limitation and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. Outfall 001:

The continuous discharge of brine.

PARAMETER	MONTHLY AVERAGE (mg/L)	DAILY MAXIMUM (mg/L)	MONITORING FREQUENCY
Chlorides	Report	Report	1/month
Flow-MGD	Report	Report	1/day
Oil & Grease	10	15	1/day
pH(standard units)	$6.0_{(min)}$	$9.0_{(max)}$	1/week
TDS	Report	Report	1/week

The permittee shall notify in writing prior to adding an oxygen scavenger or a corrosion inhibitor to the line. The permittee shall notify prior to discharge of pipeline volume upon termination of static operations. Approval of the discharge of water containing oxygen scavengers and/or corrosion inhibitors must be obtained prior to discharge. Material Safety Data Sheets and toxicity analysis for the oxygen scavengers and/or corrosion inhibitors must accompany the written requests. Approval shall be made only after the required information is submitted.

Site Specific Considerations for Outfall 001

Chlorides limitation and monitoring requirements are established based on BPJ and similar outfalls at other facilities (LOOP LLC, LPDES Permit LA0049492). Chlorides shall be monitored monthly and collected as a grab sample.

Flow is established in accordance with LAC 33:IX.2707.I.1.b. Flow shall be monitored daily and reported on the DMR as an estimate.

Oil and Grease and TDS limitations and monitoring requirements are established in accordance with BPJ and similar outfalls at other facilities (LOOP LLC, LPDES Permit LA0049492). Oil and Grease shall be monitored daily and collected as a grab sample. TDS shall be monitored weekly and collected as grab sample.

pH is established in accordance with LAC 33:IX.1113.C.1. pH shall be monitored weekly and collected as a grab sample.

B. Outfall 002:

The continuous discharge of compressor blowdown and overflow, fuel gas condensate, flare knockout drum condensate, pipeline tie-in/meter station condensate, washdown wastewaters and treated sanitary wastewater (Internal Outfall 201).

PARAMETER	MONTHLY AVERAGE (mg/L)	DAILY MAXIMUM (mg/L)	MONITORING FREQUENCY
TOC	---	50	1/month
Flow-GPD	Report	Report	1/month
Oil and Grease		15	1/month
pH(standard units)	$6.0_{(min)}$	$9.0_{(max)}$	1/month
TSS	---	45	1/month
Visible Sheen	---	No Presence	1/month

Site Specific Considerations for Outfall 002

Flow is established in accordance with LAC 33:IX.2707.J.1.b. Flow shall be monitored monthly and reported on the DMR as an estimate.

TOC, Oil and Grease, TSS and Visible Sheen limitations and monitoring requirements are established by BPJ in accordance with the LPDES Light Commercial Facilities General Permit LAG480000 Schedules C and H. TOC, COD, Oil and Grease and TSS shall be monitored monthly and collected as a grab sample. The visual sheen limitation shall be shall be **No Visible Sheen**. Visual observation shall be made once per month and the presence or absence of a sheen recorded. The number of exceedances and the total number of observations shall be recorded on a DMR annually.

pH is established in accordance with LAC 33:IX.1113.C.1. pH shall be monitored at a frequency of once per month and collected as a grab sample.

C. Internal Outfall 201:

The continuous discharge of treated sanitary wastewater.

PARAMETER	MONTHLY AVERAGE (mg/L)	DAILY MAXIMUM (mg/L)	MONITORING FREQUENCY
BOD_5	30	45 mg/L	1/6 months
Fecal coliform[1]	200 colonies/100mL	400 colonies/100mL	1/6 months
Flow-GPD	Report	Report	1/6 months

[1] Future water quality studies may indicate potential toxicity from the presence of residual chlorine in the treatment facility's effluent. Therefore, the applicant is hereby advised that a future Total Residual Chlorine limitation may be required if chlorine is used as a method of disinfection. In many cases, this becomes a NO MEASURABLE Total Residual Chlorine limitation. If such a limitation were imposed, the applicant would be required to provide for the dechlorination of the effluent prior to discharge.

Site-Specific Considerations for Outfall 201

Flow is established in accordance with LAC 33:IX.2707.I.1.b. Flow shall be monitored once every six (6) months and reported on the DMR as an estimate.

BOD_5 and fecal coliform limitations and monitoring requirements are established in accordance with the LPDES Class I General Permit LAG530000, Schedule B. BOD_5 and fecal coliform shall be monitored once every six (6) months and collected as a grab sample.

The statistical basis for BOD_5, fecal coliform and flow will be a daily maximum in lieu of a weekly average as permitted in the General Permit LAG530000. This change is consistent with current Office guidance on sanitary wastewaters.

D. Outfall 003:

The continuous discharge of stormwater runoff, pump drains, fire fighting water, fire fighting test wastewater and hydrostatic test wastewater (Internal Outfall 301).

PARAMETER	MONTHLY AVERAGE (mg/L)	DAILY MAXIMUM (mg/L)	MONITORING FREQUENCY
TOC	---	50	1/month
Flow-GPD	Report	Report	1/month
Oil and Grease	---	15	1/month
pH(standard units)	$6.0_{(min)}$	$9.0_{(max)}$	1/month

Site Specific Considerations for Outfall 003

TOC and Oil and Grease limitations and monitoring requirements are established by BPJ in accordance in accordance LDEQ Stormwater Guidance. TOC and Oil and Grease shall be monitored monthly and collected as a grab sample

Flow is established in accordance with LAC 33:IX.2707.I.1.b. Flow shall be monitored at a frequency of once per month and reported on the DMR as an estimate.

pH is established in accordance with LAC 33:IX.1113.C.1. pH shall be monitored at a frequency of once per month and collected as a grab sample.

E. Internal Outfall 301:

The intermittent discharge of hydrostatic test wastewater.

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM	MONITORING FREQUENCY
Benzene	---	50 µg/L	1/discharge event
$BTEX^{3}_{(Total)}$	---	250 µg/L	1/discharge event
Flow-GPD	Report	Report	1/discharge event
Lead	---	50 µg/L	1/discharge event
Oil & Grease	---	15 mg/L	1/discharge event
pH(standard units)	$6.0_{(min)}$	$9.0_{(max)}$	1/discharge event
TOC		50mg/L	1/discharge event
TSS		90 mg/L	1/discharge event

1 Flow shall be measured on discharges from all new and existing pipelines. Benzene, Total BTEX, and Total Lead shall be measured on discharges from existing pipelines, flowlines, vessels or tanks which have been used for the storage or transportation of liquid or gaseous petroleum hydrocarbons.

2 If any discharge extends beyond one week in duration, then sampling the above parameters shall continue on a weekly basis until discharge ends.

3 BTEX shall be measured as the sum of benzene, toluene, ethylbenzene, ortho-xylene, meta-xylene and para-xylene as quantified by EPA methods 602, 624 or 1624.

Site Specific considerations for Outfall 301

Flow is established in accordance with LAC 33:IX.2707.I.1.b. Flow shall be monitored at a frequency of once per discharge event and reported on the DMR as an estimate.

Benzene, Total BTEX, Lead, Oil & Grease, TOC and TSS limitations and monitoring requirements are established in accordance with LPDES Hydrostatic General Permit LAG670000. These parameters shall be monitored at a frequency of once per discharge event and collected as a grab sample.

pH is established in accordance with LAC 33:IX.1113.C.1. pH shall be monitored once per discharge event and collected as a grab sample.

VI. TMDL WATERBODIES:

Subsegment 010901, Atchafalaya Bay and Delta and Gulf Waters to the State three-mile limit, is listed on The Louisiana Department of Environmental Quality (LDEQ) Final 2006 303(d) as impaired for mercury. As per the TMDL, the mercury impairment is due to the atmospheric deposition of an unknown source. This facility is not reasonably expected to discharge pollutants which may contribute to this impairment.

Subsegment 060906, Intracoastal Waterway- from New Iberia Southern Drainage Canal to Bayou Sale (Estuarine), is not listed in the LDEQ's Final 2006 303(d) as impaired. However, subsegment 060906 was previously listed as impaired for suspended solids/turbidity/siltation and carbofuran. Turbidity was delisted after additional studies showed that the subsegment was meeting water quality standards (see Federal Register Notice: Volume 66, Number 66, FRL-6957-5, 4/5/2001.)

A TMDL for carbofuran for subsegment 060906 was completed on March 21, 2002. The most significant source of carbofuran in the Vermilion-Teche River Basin is from the application to rice fields to control the rice weevil. Land use analysis shows that in the Vermilion-Teche River Basin, 44% of the land area is cropland or pasture. There are no known point sources of carbofuran in the Vermilion-Teche River Basin and therefore no allocation was given to point sources.

The discharges from this facility have the potential to discharge pollutants which may contribute to suspended solids of the receiving waterbody. These impairments are addressed in the effluent limitations and monitoring requirements for Outfalls 001, 002 and 301.

LDEQ reserves the right to impose more stringent discharge limitations and/or additional restrictions in the future to maintain the water quality integrity and the designated uses of the receiving water bodies based upon additional TMDLs and/or water quality studies. The DEQ also reserves the right to modify or revoke and reissue this permit based upon any changes to established TMDLs for this discharge, or to accommodate for pollutant trading provisions in approved TMDL watersheds as necessary to achieve compliance with water quality standards.

VIII. COMPLIANCE HISTORY/DMR REVIEW:

This is a proposed facility and therefore does not have any compliance issues.

IX. ENDANGERED SPECIES

The receiving waterbodies, Subsegment 010901 and 060906 are not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated November 18, 2008, from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section7, Endangered Species Act) consultation is required. It was determined that the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat.

X. HISTORIC SITES

There should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places. In accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits", consultation with the Louisiana State Historic Preservation Officer is required. A no objection was received from State Historic Preservation Officer Scott Hutcheson on February 26, 2009

XI. TENTATIVE DETERMINATION

Based on preliminary staff review, the Department of Environmental Quality has made a tentative determination to permit for the discharge described in the application.

XII. PUBLIC NOTICES

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the statement of basis. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing list